

Impacts Of Salinity on Co2 Turnover in Some Gefara Soils of Libya

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Abstract : Salinization is a major threat to the productivity of agricultural land. The Gefara Plain located in the northwest of Libya; comprises about 80% of the total agricultural activity. The high water requirements for the populations and agriculture are depleting the groundwater aquifer, resulting in intrusion of seawater in the first few kilometers along the coast. Due to increasing salinity in the groundwater used for irrigation, the soils of the Gefara Plain are becoming increasingly saline. This research paper investigated the sensitivity of these soils to increased salinity using Co₂ evolution as an integrating measure of soil function. Soil was collected from four sites located in the Gefara Plain, Almaya, Janzur, Gargaresh and Tajura. Soil collected from Tajura had the highest background salinity, and Janzur had the highest organic matter content. All of the soils had relatively low organic matter content, ranging between 0.49-1.25%. The cumulative rate of ¹⁴C₂O of added ¹⁴C-labelled Lolium shoots (*Lolium perenne* L.) to soils was decreased under effects of water containing different concentrations of NaCl at 20, 50, 70, 90, 150, and 200 mM compared to the control at any time of incubation in four sites.

Keywords : soil salinity, gefara plain, organic matter, ¹⁴C-labelled lolium shoots

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